

EnviroMark 522

Lead Free, Water-Soluble Solder Paste

Product Description

EnviroMark 522 is an organic acid, water soluble solder paste formula specifically designed for use with higher temperature, lead-free soldering alloys such as Sn96.5Ag3.0Cu0.5 as well as other similar SAC alloy compositions. It is specifically designed for the printing requirements of μ CSP, μ BGA and 0201 components. Its excellent paste release and print stability makes it ideal for challenging designs with ultra-fine pitches and small stencil openings. It offers good solderability and excellent wetting on various metallization in air reflow environment. EnviroMark 522 is an extremely stable water soluble formula.

- Lead free and Water Soluble
- Higher Temperature Alloy Compatible
- Excellent printing characteristics for μ CSP, μ BGA, 0.4mm (16 mil) pitch QFP and 0201
- Excellent solderability to a wide variety of metallization, including OSP, Ni/Au, Ni/Pd/Au, Sn, Ag
- Processable by air or nitrogen reflow
- Anti-slumping to eliminate cold bridging
- Reduces scrap due to less paste dry out
- Stable tack life
- Residues easily removed with hot DI water
- Classified as ORH0 per J-STD-004

Standard Applications

90% Metal -- Stencil Printing and MPM RheoPump™ and DEK ProFlow™ enclosed print head systems

Physical Properties

(Data given for Sn96.5Ag3.0Cu0.5, 90% metal, -325+500 mesh
Data representative of most SnAgCu compositions)

Viscosity (typical) : 2795 poise

Malcom Viscometer PCU-203 @ 10 rpm, 25°C, measurement after 9 minutes

Initial Tackiness (typical) : 15 grams

Tested to J-STD-005, IPC-TM-650, Method 2.4.44

Slump Test: Pass

Tested to J-STD-005, IPC-TM-650, Method 2.4.35

Solder Ball Test: Preferred

Tested to J-STD-005, IPC-TM-650, Method 2.4.43

Wetting Test: Pass

Tested to J-STD-005, IPC-TM-650, Method 2.4.45

pH (5% solution, typical): 6.5

Mettler-Toledo MA235 pH/Ions Analyzer at paste flux level

Reliability Properties

Copper Mirror Corrosion: High

Tested to J-STD-004, IPC-TM-650, Method 2.3.32

Corrosion Test: High

Tested to J-STD-004, IPC-TM-650, Method 2.6.15

Silver Chromate: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.33

Fluorides by Spot Test: Pass

Tested to J-STD-004, IPC-TM-650, Method 2.3.35.1

S.I.R., IPC (typical): Pass

Tested to J-STD-004, IPC-TM-650, Method 2.6.3.3

	Blank	EnviroMark 522
Day 1(24 h)	$6.71 \times 10^9 \Omega$	$1.44 \times 10^8 \Omega$
Day 4(96 h)	$7.55 \times 10^9 \Omega$	$6.99 \times 10^8 \Omega$
Day 7(168 h)	$6.81 \times 10^9 \Omega$	$7.97 \times 10^8 \Omega$

Application Notes

Availability:

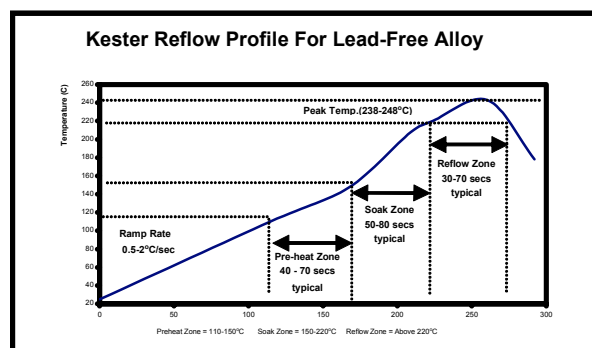
EnviroMark 522 is commonly available in the Sn96.5Ag3Cu0.5 and Sn96.5Ag3.5 alloys. Type 3 powder mesh is recommended but different powder particle size distributions are available for standard and fine pitch applications. EnviroMark 522 is also compatible with other SnAgCu alloys in similar melting range to the listed alloys. For specific packaging information refer to Kester's Solder Paste Packaging Chart for available sizes. The appropriate combination depends on process variables and the specific application.

Printing Parameters:

Squeegee Blade	80 to 90 durometer polyurethane or stainless steel
Squeegee Speed	Capable to a maximum speed of 70 mm/sec (2.8 in/sec), 25 to 40 mm/sec (1-1.6 in/sec) recommended
Stencil Material	Stainless Steel, Molybdenum, Nickel Plated, Brass
Temperature / Humidity	Optimal ranges are 21-25°C (70-77°F) and 35-65% RH

Recommended Reflow Profile:

The recommended convection reflow profile for EnviroMark 522 formula made with either the SAC alloys is shown here. This profile is simply a guideline. Since EnviroMark 522 is a highly active, no-clean solder paste, it can solder effectively over a wide range of profiles. Your optimal profile may be different from the one shown based on your oven, board and mix of defects. Please contact Kester if you need additional profiling advice.



Cleaning:

EnviroMark 522 residues are best removed using automated cleaning equipment (in-line or batch). De-ionized water is recommended for the final rinse. Water temperatures should be 40-50°C (104-122°F).

Storage, Handling and Shelf Life:

Refrigeration is the recommended optimum storage condition for solderpaste to maintain consistent viscosity, reflow characteristics and overall performance. EnviroMark 522 should be stabilized at room temperature prior to printing. EnviroMark 522 should be kept at standard refrigeration conditions, 0-10°C (32-50°F). Please contact Kester if you require additional advice with regard storage and handling of this material. Shelf life is 4 months from date of manufacture when handled properly and held at 0-10°C (32-50°F).

Health & Safety:

This product, during handling and use, may be hazardous to health or the environment. Read the Material Safety Data Sheet and the label before using this product.

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